# Integrating Cobra for Cost/Earned Value Management in the Oracle Financials Environment

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Patent Pending

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# Agenda

◆ **Functional Problems Facing JPL**

◆ **Why Cobra Must Be Interfaced To Project Accounting**

◆ **Overall Objective Of This Task**

◆ **Requirements That Must Be Satisfied**

◆ **Shared Data Between Cobra and Oracle**

◆ **Design Constraints**

◆ **Architecture Design Solution**

◆ **Major Capabilities of This Architecture**

◆ **Upload WBS and Budget Process**

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# *Agenda* (continued)

◆ **Cobra Upload Screen**

◆ **JPL Upload Screen In Oracle**

◆ **Challenges Facing The Design Team**

◆ **Functionality Loss When Integrating COTS Software**

◆ **Lessons Learned**

◆ **Future Plans**

◆ **Conclusion**

◆ **Questions and Answers**

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# *Functional Problems Facing JPL*

◆ **September 1998 -- New NASA prime contract *requires* EVM**

- ● JPL home grown budget tool is <u>not</u> capable of EVM
- ● Oracle Financial is <u>not</u> capable of EVM
- ● Cobra and other COTS tools <u>are</u> capable of EVM

◆ **NASA Monthly Form 533 Report -- Requires ETC / EAC**

- ● JPL home grown budget tool is <u>not</u> capable of ETC / EAC
- ● Oracle Financials is <u>not</u> capable of ETC / EAC
- ● Cobra and other COTS tools <u>are</u> capable of ETC / EAC

◆ **New Project Management Process Implemented at JPL**

- ● JPL home grown budget tool does <u>not</u> enable the new process
- ● Oracle Financials does <u>not</u> enable the new process
- ✳ Cobra <u>does</u> enable the new process

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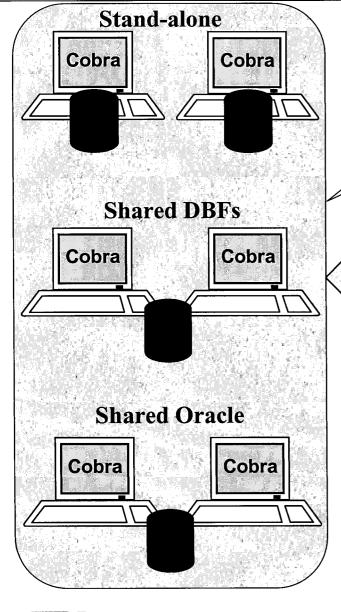
# Why Cobra Must Be Interfaced To Project Accounting

**Project Accounting is the source of all actual costs and obligations**

**JPL's home grown budget tool directly stores budgets in Project Accounting**

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# *Overall Objective Of This Task*

# *Requirements That Must Be Satisfied*

◆ **Only store approved budgets and approved ETC / EAC in Project Accounting**

◆ **Allow immediate storing of Cobra WBSs, budgets, and ETC / EAC in Project Accounting**

◆ **Selectively limit storing of Cobra WBSs, budgets, and ETC / EAC in Project Accounting to off-shift hours**

◆ **Provide Cobra with month-end costs and obligations**

◆ **Provide Cobra with current OBS, RBS, Labor and Burden Rates, Fiscal Calendar, List of Managers**

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# *Shared Data Between Cobra and Oracle*

◆ **Work Breakdown Structures (WBS)**

◆ **Approved Baseline Budgets**

◆ **Approved ETCs and EACs**

◆ **Actual Costs and Obligations [Encumbrances]**

◆ **Global Information**

- **Organization Breakdown Structure (OBS)**
- **Resources / Expenditure Types (RBS)**
- **List of Managers**
- **Fiscal Calendar**
- **Standard Labor and Burden Rates**
- **Project Accounting Flex Fields / Cobra Code Files**

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# *Design Constraints*

◆**Short time frame**

◆**Restricted cost**

◆**A Project Management tool had not been selected**
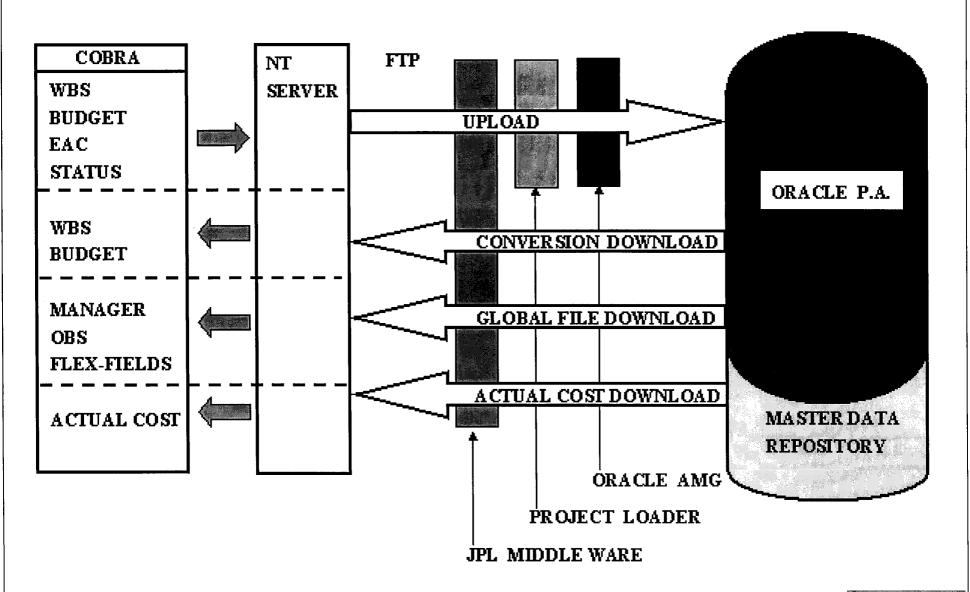
◆**JPL's techno-culture**

◆**Oracle's recommendation to use the AMG**

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# Architecture Design Solution



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# *Major Capabilities Of This Architecture*

◆ **Upload WBSs, Approved Baseline Budgets, ETCs / EACs from Cobra**

  ● **Immediate (Ad hoc)**
  ● **Overnight (Batch)**

◆ **Download Actual Costs and Obligations to Cobra**

  ● **Immediate (Ad hoc)**
  ● **Automatically at Month End**

◆ **Download Global Files to Cobra -- *When Changes Occur***

◆ **Download Converted WBSs and Approved Oracle Baseline Budgets to Cobra -- *Once Per Project* (Existing and New)**

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◆**Control and Manage the Application in Oracle**

◆**Send Email Alerts from Oracle to Cobra Users**

◆**Nightly Cleanup and Maintenance in Oracle**

◆**Nightly Data Integrity Reporting in Oracle**

◆**Monthly "Who's Not Following the Process" Reports in Oracle**

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# *Upload WBS and Budget Process*

| | |
|---|---|
| **Welcom Cobra Extract** | **-- Create WBS & Budget Flat Files on NT Servers** |

*Oracle Forms* -- Submit Unix Upload Script

*FTP* -- Upload Flat Files To Unix Server

*FTP* -- Delete Flat Files from NT Servers

*PL/SQL* -- Edit and Validate Uploaded Files

*PL/SQL* -- Enforce JPL Business Rules

*PL/SQL* -- Load Validated Files to Project Partners Tables

*PL/SQL* -- Read Project Partners Tables

*PL/SQL* -- Call AMG to Update Project Accounting

*PL/SQL* -- Analyze Results Returned From AMG

*PL/SQL* -- Erase Project Partners Tables

*Unix* -- Email Users the Upload Results

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# Cobra Upload Screen

# *Cobra Upload Screen*



Cobra

File   Edit   Initialize   Status   Tools   Reports   System   Upload   Window   Help

Cobra

## Cobra Upload Screen

## Cobra Upload

| 001820 | TASK ORDER RF-1? |
|--------|------------------|
| 02IM00 | Office of the Controll |
| 064002 | X2000 First Delivery |
| 064410 | NEW MILLENNIUM |
| 064420 | EARTH ORBITING |
| 100210 | Deep Space 3-Forma |
| 100219 | NEW MILLENNIU |

Check:

☐ Upload Project WBS

☐ Upload Baseline Budgets

☐ Upload EAC's

☐ Upload Project Status
    (EV / Percent Complete)

Submit

Clear

Exit

Locks [c:\program files\welcom\cobra'Record: 111/111     Record Locked

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# Cobra Upload Screen

# Cobra Upload Screen

# Cobra Upload Screen



Cobra

File  Edit  Initialize  Status  Tools  Reports  System  Upload  Window  Help

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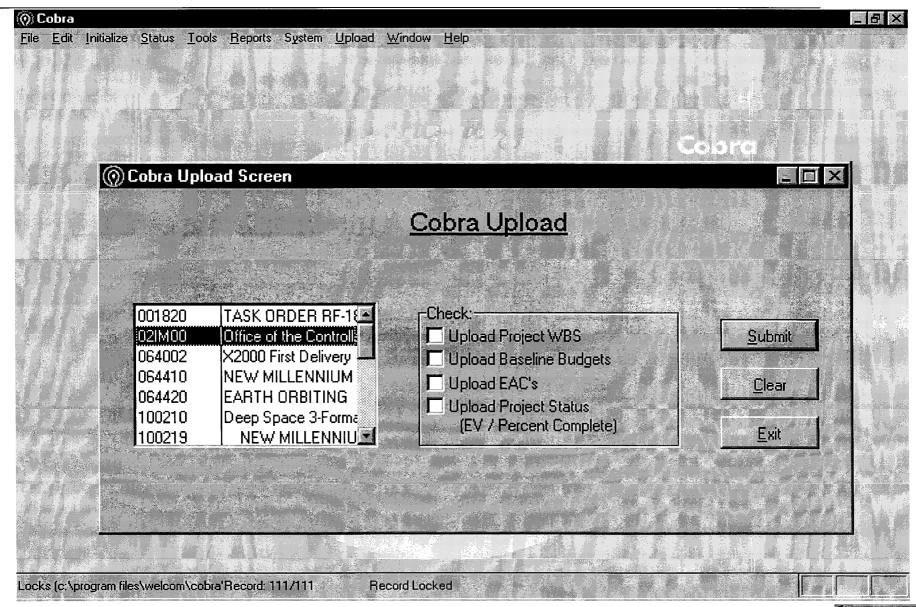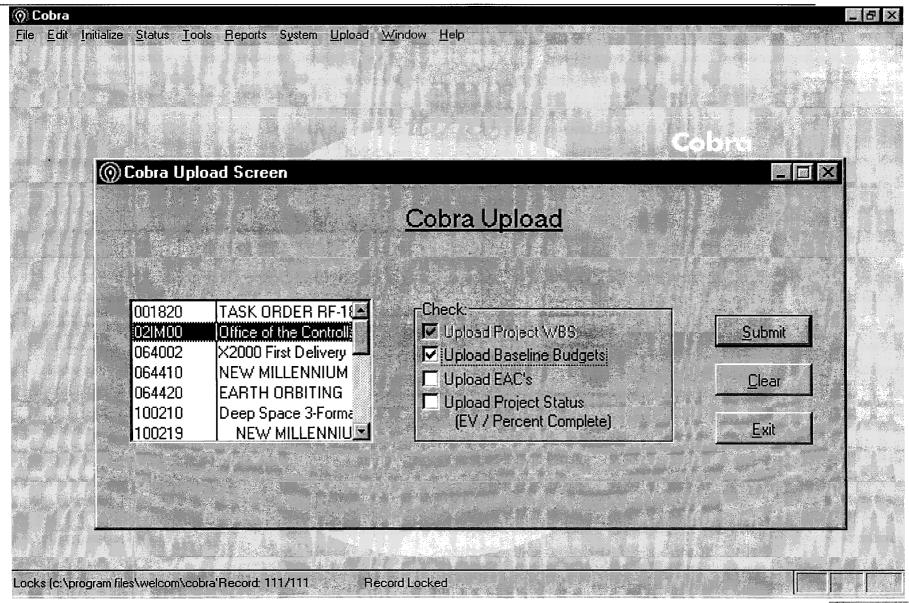WelcomWorld
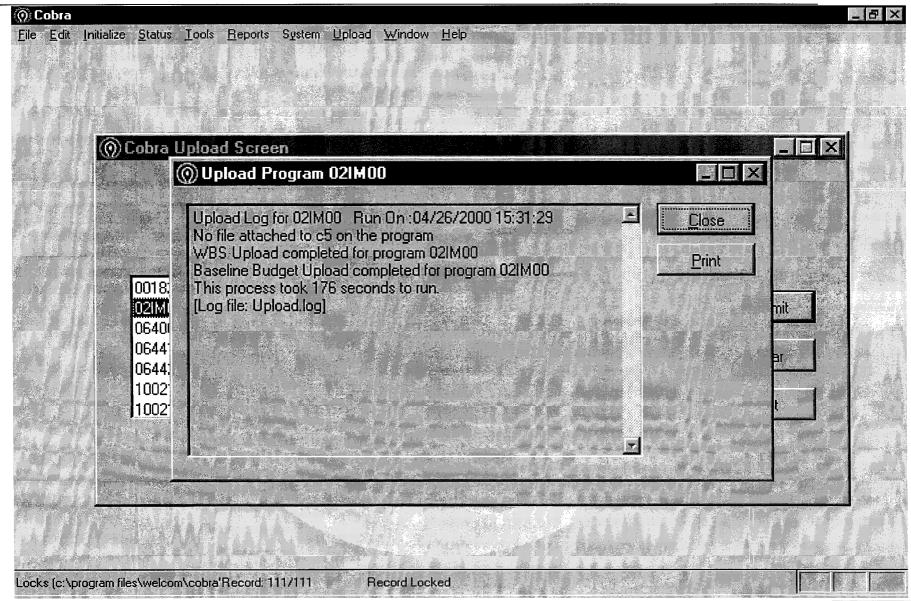
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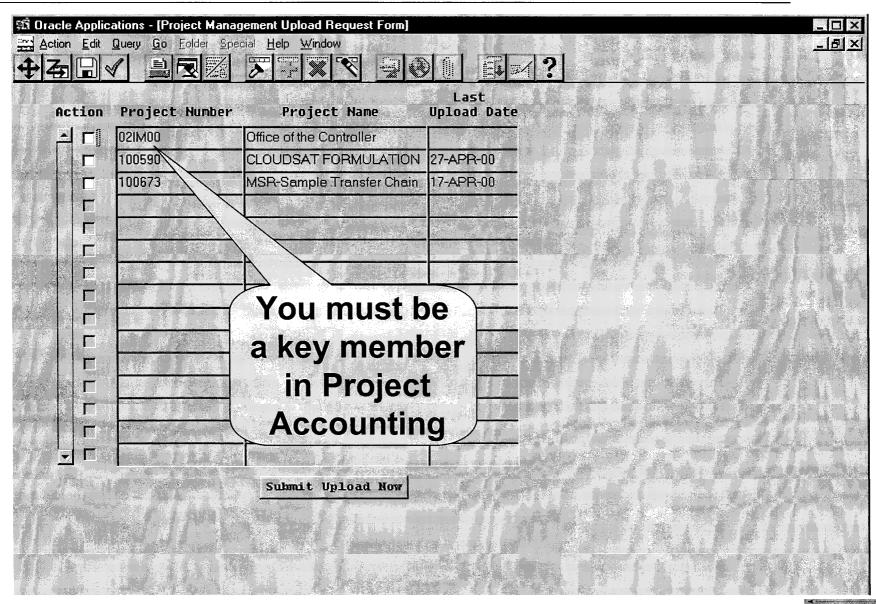
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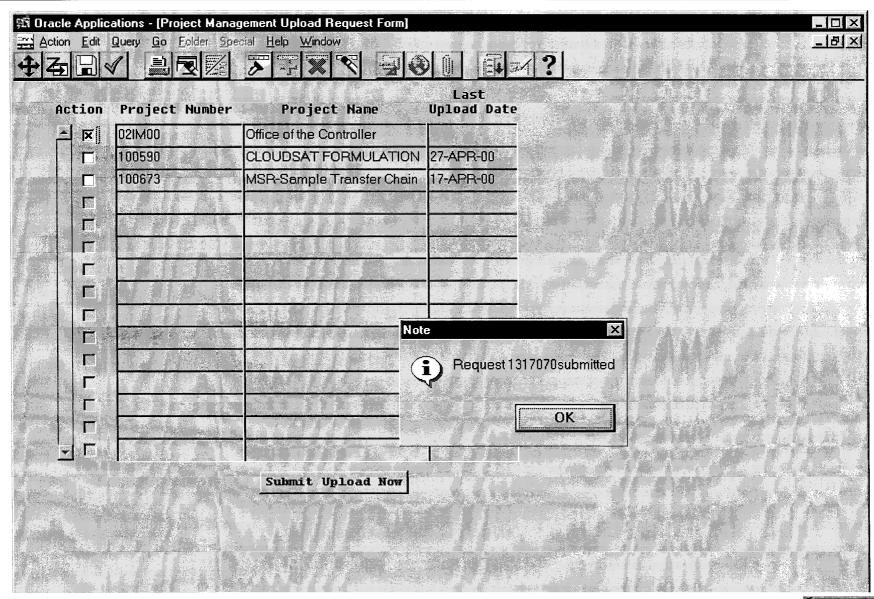
*PL/SQL* -- Erase Project Partners Tables

*Unix* -- Email Users the Upload Results

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# JPL Upload Form in Oracle

# JPL Upload Form in Oracle

# *Upload WBS and Budget Process*

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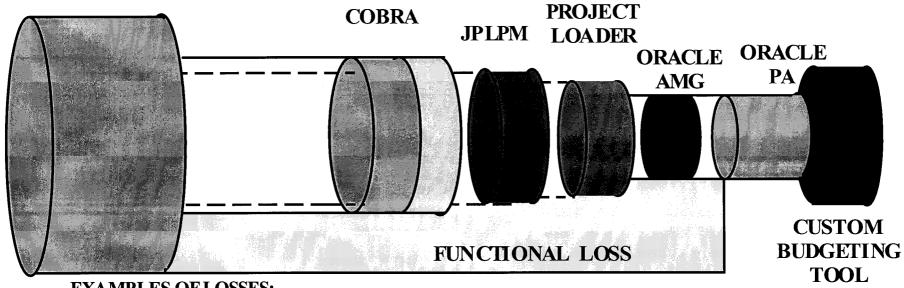# *Challenges Facing The Design Team*

◆ **Nature of Task Start and End Dates in Project Accounting**

◆ **Corrupted Data in Project Accounting**

◆ **Provide Real-Time Feedback to Users When Interacting With Project Accounting**

◆ **Two Sources of WBS and Budget Data Into PA**

◆ **Immediate Notification When Global Files Change in PA**

◆ **Functionality Loss When Integrating COTS Software**

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# *Functionality Loss When Integrating COTS Software*

DESIRED FRONT-END

PLANNING CAPABILITY

COBRA

JPLPM

PROJECT
LOADER

ORACLE
AMG

ORACLE
PA

CUSTOM
BUDGETING
TOOL

FUNCTIONAL LOSS

EXAMPLES OF LOSSES:

Submit approval for individual Task

JPL Line Codes

Cross-Charge Planning

Workforce by actual "heads"

Multiple use of one resource in a task

Automatic rate override/unique rates by task

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# *Lessons Learned*

◆ **Select *All* COTS Software Prior to System Design**

◆ **Clean Up Corrupted Data Prior to System Design**

◆ **Obtain Company Acceptance of New Business Rules Prior to System Design**

# *Future Plans*

◆ **Eliminate FTP Upload and Download**

    ● **Access Unix directly from Windows NT client**

◆ **Eliminate WBS and budget text files**

    ● **Enhance the Cobra Upload program to populate JPL Custom Oracle tables**

◆ **Make Cobra the single source of all budget data**

    ● **Phase out JPL's home grown budget tool**

◆ **Produce NASA Form 533 and all budget reports from Cobra Data Bases**

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# *Conclusion*

◆ **Resulting Architecture is not Glamorous or Cutting Edge but Accomplishes its Objectives**

◆ **Architecture is Being Successfully Used by its Intended Customers**

◆ **Architecture Design was Greatly Influenced by Available Resources**

◆ **Use of COTS Software Greatly Reduced Development Time and Expense**

◆ **Other Architectures Will be Evaluated With End User Throughput Being the Main Consideration**

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